

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~striketrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered). Please AMEND claims 1, 3, 14 and 15 and ADD new claims 16 and 17 in accordance with the following:

1. (CURRENTLY AMENDED) A socket for an electrical part comprising:

a socket body; and

a contact pin which is provided for the socket body and through which an electrical part having a terminal and a printed circuit board are electrically connected,

said socket body having a lower plate to be mounted to the printed circuit board and an upper plate which is disposed ~~above~~ on the lower plate and on which the electrical part is to be mounted, wherein said upper plate has a seating portion on which the electrical part is placed in a contacting manner,

said lower plate and said upper plate being formed with a plurality of lower side through holes and a plurality of upper side through holes, respectively, the contact pin being inserted into a pair of the lower and the upper side through holes,

said contact pin comprising:

a first plunger electrically connected to the terminal of the electrical part,

a second plunger electrically connected to the printed circuit board,

a tubular member disposed between the first and the second plungers, and

an elastic member, the elastic member and the tubular member being disposed between the first and the second plungers ~~to urge the first and second plungers in opposite directions,~~

~~said~~ the tubular member having an end portion detachably engaging with one of the first and the second plungers, and a portion slidably contacting with another one of the first and the second plungers.

the elastic member urging the tubular member so that the tubular member can abut against one of the first and the second plungers, resulting in urging the first and the second plungers in opposite directions to each other.

2. (ORIGINAL) A socket for an electrical part according to claim 1, wherein said contact pin is provided with a contact portion having a shape which is changed in accordance with a shape of the terminal of the electrical part.

3. (CURRENTLY AMENDED) A socket for an electrical part according to claim 1, wherein said ~~said~~ first plunger is replaced with a replacement first plunger having a contact portion having a different shape from the first plunger in accordance with a shape of the terminal of the electrical part.

4. (PREVIOUSLY PRESENTED) A socket for an electrical part according to claim 1, wherein said contact portion has a mount shape to which a terminal having a land shape contacts.

5. (PREVIOUSLY PRESENTED) A socket for an electrical part according to claim 1, wherein said contact portion has a V-shaped groove to which a terminal having a solder ball shape contacts.

6. (PREVIOUSLY PRESENTED) A socket for an electrical part according to claim 1, wherein said contact portion has a plural mount-shape to which a terminal having a pin shape contacts.

7. (PREVIOUSLY PRESENTED) A socket for an electrical part according to claim 1, wherein said elastic member is a coil spring disposed at an inside of the tubular member.

8. (PREVIOUSLY PRESENTED) A socket for an electrical part comprising:  
a socket body; and  
a contact pin which is provided for the socket body and through which an electrical part having a terminal and a printed circuit board are electrically connected,  
said socket body having a lower plate to be mounted on the printed circuit board and an upper plate which is disposed above the lower plate and on which the electrical part is mounted, wherein said upper plate has a seating portion on which the electrical part is placed in a contacting manner,  
said lower plate and said upper plate being formed with a plurality of lower side through holes and a plurality of upper side through holes, respectively, the contact pin being inserted into a pair of the lower side and the upper side through holes, said plurality of lower side through holes being formed in an arrangement range wider than that of the plurality of upper side through holes.

9. (PREVIOUSLY PRESENTED) A socket for an electrical part according to claim 8, wherein said upper plate comprises:  
an upper plate body to which said plurality of upper side through holes are formed and on which the electrical part is mounted, and  
a guide portion for guiding a peripheral edge portion of the electrical part.

10. (ORIGINAL) A socket for an electrical part according to claim 9, wherein said guide portion is formed to be detachable from the upper plate body.

11. (PREVIOUSLY PRESENTED) A socket for an electrical part according to claim 1, wherein the upper plate is designed to be replaced with a replacement upper plate having a seating portion of a different height from the upper plate.

12. (PREVIOUSLY PRESENTED) A socket for an electrical part according to claim 1, wherein the upper side through holes and the lower side through holes respectively have equal pitches, and each of the contact pins extends through each pair of the lower side and the upper side through holes.

13. (PREVIOUSLY PRESENTED) A socket for an electrical part according to claim 1, wherein the first plunger has a first stopper portion and a first projection portion and the second plunger has a second stopper portion and a second projection portion, and

the upper side through hole has a first stepped portion corresponding to the first stopper portion of the first plunger so as to prevent the first plunger from coming off from an upper side of the upper side through hole, and the lower side through hole has a second stepped portion corresponding to the second stopper portion of the second plunger so as to prevent the second plunger from coming off from a lower side of the lower side through hole.

14. (CURRENTLY AMENDED) A socket for an electrical part according to claim 13, wherein in the upper side through hole, the first plunger, the tubular member, and a coil spring having the elastic member have a same inner and a same outer diameter of as the tubular member and are disposed in order from top to bottom, and in the lower side through hole, the second plunger is disposed so that a peripheral portion of an upper surface opposite to the second stopper portion of the second plunger abuts a lower portion of the coil spring, a shank portion projecting upward from the upper surface opposite to the second stopper portion of the

second plunger is inserted, via the coil spring, into the inside of the tubular member to slidably engage with the tubular member.

15. (CURRENTLY AMENDED) A method of assembling a socket for an electrical part comprising a socket body and a contact pin which is provided for the socket body and through which an electrical part having a terminal and a printed circuit board are electrically connected, said contact pin having an elastic member urging a plunger upward, said socket body having a lower plate to be mounted to the printed circuit board and an upper plate which is disposed ~~above~~ on the lower plate and ~~on which the electrical part is to be mounted, wherein said upper plate~~ has a seating portion on which the electrical part is placed in a contacting manner, the method comprising:

preparing a plurality of the upper plates with respect to the lower plate, each upper plate having the seating portion of a different height;

selecting one of the upper plates in accordance with the electrical part to be tested so that a press-in amount becomes a predetermined same amount, the press-in amount being a distance between the seating portion and a lower portion of a an electrical part body of the electrical part when the ~~electrical part~~ terminal is mounted on the ~~contact pin~~ first plunger and an external force is not applied on the electrical part from a press member; and

assembling the selected upper plate detachably but immovably on the lower plate.

16. (NEW) A socket for an electrical part comprising:

a socket body; and

a contact pin which is provided for the socket body and through which an electrical part having a terminal and a printed circuit board are electrically connected,

said socket body having a lower plate to be mounted to the printed circuit board and an upper plate which is disposed above the lower plate and on which the electrical part is to be mounted, wherein said upper plate has a seating portion on which the electrical part is placed in a contacting manner,

said lower plate and said upper plate being formed with a plurality of lower side through holes and a plurality of upper side through holes, respectively, the contact pin being inserted into a pair of the lower and the upper side through holes,

said contact pin comprising:

a first plunger electrically connected to the terminal of the electrical part,

a second plunger electrically connected to the printed circuit board,

a tubular member disposed between the first and the second plungers, and

an elastic member disposed between the first and second plungers to urge

the first and second plungers in opposite directions,

said tubular member having an end portion detachably engaging with one of the first and the second plunger, and a portion sliding within the upper plate and contacting with another one of the first and the second plungers.

17. (NEW) A socket for an electrical part comprising:

a socket body; and

a contact pin which is provided for the socket body and through which an electrical part having a terminal and a printed circuit board are electrically connected,

the contact pin having a contact portion contacting the terminal, the contact portion being urged toward the electrical part and being movable against an urging force when the terminal abuts against the contact portion,

said socket body having a lower plate to be mounted to the printed circuit board and an upper plate which is detachably but immovably disposed on the lower plate and on which the electrical part is to be mounted,

said upper plate having a seating portion on which the electrical part is placed in a contacting manner,

the upper plate being designed to be replaced with another upper plate having a press-in amount which is the same as the upper plate, the press-in amount being a distance between a position where the terminal is abutted against the contact portion of the contact pin and a position where the electrical part is abutted against the seating portion.

**REMARKS**

**INTRODUCTION:**

In accordance with the foregoing, claims 1, 3, 14 and 15 have been amended. New claims 16 and 17 have been added. Claims 1-17 are pending and under consideration. The objections and rejections refer to the objections/rejections set forth in the Office Action mailed April 10, 2003, and the Advisory Action mailed September 25, 2003.

**OBJECTIONS TO CLAIMS 3, 14 AND 15:**

The Advisory Action indicates that the objections are overcome.

**REJECTIONS UNDER 35 U.S.C. §112:**

The Advisory Action indicates that the rejections are overcome.

**REJECTIONS UNDER 35 U.S.C. §102/103:**

*Claims 1-7 and 11-15 are rejected under 35 U.S.C. §102(a) as being anticipated by Barabi et al.*

Independent claim 1 recites "the elastic member urging the tubular member so that the tubular member can abut against one of the first and the second plungers, resulting in urging the first and the second plungers in opposite directions to each other." It is respectfully submitted that Barabi et al. does not describe these features.

The Examiner states that FIGS. 3A and 3B of Barabi et al. teach the features regarding the tubular member and the first and second plungers. According to the Examiner, the spring barrel 51 of this reference corresponds to the claimed tubular member and the piston ends 63, 65 of this reference correspond to the claimed first and second plungers. However, the elongated spring barrel 51 does not urge either of the piston ends 63, 65. Instead, the piston ends are urged by a compression spring 53 which is disposed within the spring barrel 51. The coil spring 53 is not detachably engaged with the piston ends 63, 65, as claimed.

An advantage of the invention of claim 1 is that the first plunger can be replaced with a replacement first plunger, and also electric conduction between the plunger and the tubular member can be improved because the plunger and tubular member slidably contact each other.



Claim 3 depends from claim 1, and recites that the first plunger is replaced with a replacement first plunger having a different shape from the first plunger. As is apparent from FIGS. 3A and 3B of Barabi et al., plunger 63 and 65 of Barabi et al. is not separable from the barrel 51 of the contact pin so that the plunger can not be replaced with a replacement plunger.

Claims 4-6 depend from claim 1, and recite "different shapes for the contact portions with respect to different shapes of the contacts." However, since Barabi et al. only relates to a BGA, this reference does not disclose the land shape contacts and pin shape contacts of claims 4 and 6, respectively. Furthermore, this reference does not appear to teach the claimed "mount shaped" and "plural mount-shaped" contact portions to respectively accommodate the land shaped contacts and the pin shaped contacts.

Claims 2, 7 and 11-14 also depend from claim 1, and are therefore patentably distinguishable from Barabi et al.

Regarding independent claim 15, this claim recites, "selecting one of the upper plates in accordance with the electrical part to be tested so that a press-in amount becomes a predetermined same amount." At page 4, lines 15-16, and page 6, lines 14-16 of the Office Action, the Examiner states that the platform 25 of Barabi et al. can be replaced with another platform of a different height. However, the Examiner has not indicated where this reference teaches a same press-in amount for the replacement platform. This reference only teaches accommodation of a BGA device and thus does not disclose teaching that the platform 25 can be changed or that the press-in is unchanged for different platforms. The invention of claim 15 can secure a stable and constant contact pressure between the terminal of the electrical part and the contact pin by making the press-in amount constant through selecting and changing the upper plate, so that a constant electrical conduction can be secured even when the size and type of the electrical part to be tested is changed. Therefore, the portion of the socket to be tested is changed, and socket parts other than the upper plate can be commonly used, resulting in a more economical structure.

Furthermore, claim 15 recites that the upper plate is "detachably but immovably" assembled on the lower plate. Thus, fluctuation between the upper plate and the lower plate is prevented. However, in Barabi, the platform 25 is easily moved vertically or horizontally because the platform 25 is supported by springs 35, which are easily movable and unstable.

Accordingly, withdrawal of the rejection of claim 15 is requested.

*Claims 8-9 are rejected under 35 U.S.C. §102(e) as being anticipated by Fredrickson et al.*

Claim 8 recites that an arrangement range of the lower side through holes is wider than an arrangement range of the upper side through holes. This feature is illustrated, for example, in present FIG. 1. This figure illustrates that the right-most one of the upper through holes 17a is between the press member 30 and the socket 11. However, the right-most one of the lower through holes 16a is below the socket member 11. Thus, nine of the lower through holes 16a are spaced over a wider range than six of the upper through holes 17a. This wide arrangement is due to the fact that the upper through holes 17a are spaced from each other with the same spacing as the lower through holes 16a.

In contrast, FIGS. 3A and 3B of Frederickson et al., relied upon by the Examiner, illustrate equal numbers of holes in the housing 310 and the plate portion 322. Specifically, a range between the left-most through hole 328 in the plate portion 322 is equal to a range between the left-most socket 240 and the right-most socket 240.

*Claim 10 is rejected under 35 U.S.C. §103(a) as being unpatentable over Fredrickson et al. in view of Barabi et al.*

Claim 10 depends from independent claim 8, and is patentable over Frederickson et al., for the at least the above reasons with respect to the width arrangements. Barabi et al. does not appear to overcome these deficiencies, and is not relied upon by the Examiner to do so.

#### **NEW CLAIMS:**

New independent claim 16 is added and recites, "said tubular member having an end portion detachably engaging with one of the first and the second plunger, and a portion sliding within the upper plate and contacting with another one of the first and the second plungers." It is respectfully submitted that the cited references do not teach or suggest these features.

New independent claim 17 is added and recites the upper plate is replaced with another upper plate having a press-in amount which is the same as the upper plate. This claim further recites the upper plate is detachably but immovably disposed on the lower plate. Accordingly, claim 17 is patentable over the cited references.

#### **CONCLUSION:**

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.


Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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